

### **REMARKS**

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks.

#### **Objection to the Specification**

At page 2 of the Office Action, the Specification was again objected to because it allegedly contained informalities. More specifically, the description at pages 7-8 was objected to because reference is made to Figs. 4 and 5, while the drawings include Figs. 4a, 4b, 5a, and 5b. Applicant respectfully requests reconsideration of this objection.

By way of the foregoing amendment to the specification, reference to “Fig. 4” has been replaced with “Figs. 4a and 4b”, while reference to “Fig. 5” has been replaced with “Figs. 5a and 5b”. No new matter has been entered.

For at least the foregoing reasons, Applicant respectfully submits that the Specification is not objectionable, and therefore respectfully requests withdrawal of the objection thereto.

#### **Rejections under 35 U.S.C. § 102**

In the Office Action, beginning at page 3, Claims 1-17 were rejected under 35 U.S.C. § 102(b), as reciting subject matters that allegedly are anticipated by *Schulte-Werning*; Claims 1-8, 10-12, 14, and 16 were rejected under section 102(b) as reciting subject matters that allegedly are anticipated by *Althaus* ‘982; and Claims 1-12, 14, and 16 were rejected under section 102(b) as reciting subject matters that allegedly are anticipated by *Althaus* ‘311. Applicants respectfully request reconsideration of these rejections.

Applicant notes that the Office Action again includes, below each rejection under section 102, the complete text of each of *Schulte-Werning*, *Althaus* ‘982, and *Althaus* ‘311, respectively. It is first unclear to Applicant why, especially in light of the verbatim copying of the text of these documents in the first Office Action, the final Office Action again includes this text. Applicant notes the several passages to which emphasis has been added, and finds them as inapplicable to the subject matters of the pending claims as the remainders of the patents. In addition, the Office

Action includes a “Response to Arguments” section beginning at page 46, which likely includes the first actual explanation in this record of the bases for the various rejections.

The Continuation Sheet of the Advisory Action includes, for the first time, an explanation of how certain claim terms are being interpreted by the Patent Office. Applicant applauds the citation to the Federal Circuit’s *Phillips* decision (*Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*)); however, the Advisory Action fails to fully carry out the Court’s mandate when analyzing claim terms, which failure has resulted in (at least) the claim term “impulse” being incorrectly interpreted.

Applicant notes that Claims 1-9 and 16, the apparatus claims, have been cancelled, narrowing the focus of this application to the subject matters of method Claims 10-15 and 17. Applicant has, both in the instant specification and the Response filed 12 October 2005, described some aspects of the present application and some of their advantages over the prior art, including *Schulte-Werning*, *Althaus* ‘982, and *Althaus* ‘311. Thus, Applicant will not burden the record with redundant explanations, and merely incorporates by reference those discussions.

Claim 10 relates to a method for controlling the wake flow of a vortex generator in a flow duct to which a fluid medium is applied, the method having a combination of steps including, *inter alia*, introducing an axial impulse in the zone of the core flow of the forming wake vortices at least approximately in the direction of the main flow.

The prior art, including *Schulte-Werning*, *Althaus* ‘982, and *Althaus* ‘311, fails to identically disclose or describe combinations of steps as recited in the pending claims.

Fundamentally, the rejections of the method claims’ subject matters fail because none of the prior art describes methods including the application of an axial impulse as recited in the pending claims. Instead, each of *Schulte-Werning*, *Althaus* ‘982, and *Althaus* ‘311 describe the application of a constant flow into the vortices caused by the vortex generators, which is fundamentally different from an axial impulse. The Office Action tacitly acknowledges this difference where, at page 50, it states: “It is clear that the prior art vortex generators each either produce (as emphasized above) or are most capable of producing countercurrent vortices along the axis of the main flow . . .”. The Office Action is plainly incorrect in the assertion that

*Schulte-Werning*, *Althaus* '982, and *Althaus* '311 disclose an axial impulse - instead, none of them disclose such subject matter.

Despite the lengthy discussion of the law of anticipation under section 102, the Office Action notably fails to include an important facet thereof: the disclosure of a prior device arguably capable of performing a claimed method does not anticipate the method, absent a disclosure of the steps of the method or evidence that the steps are inherent in the use of the device. Yet this is the condition of the method claims: *Schulte-Werning*, *Althaus* '982, and *Althaus* '311's vortex generators arguably could be used to perform Applicant's claimed method, but there is no recognition of this in the prior art. Furthermore, it is plainly not true that a vortex generator, through which a large secondary flow is constantly injected, as in *Schulte-Werning*, *Althaus* '982, and *Althaus* '311, inherently performs a step of introducing an axial impulse in the zone of the core flow of the forming wake vortices at least approximately in the direction of the main flow. Therefore, the prior art of *Schulte-Werning*, *Althaus* '982, and *Althaus* '311 fail to disclose each and every step recited in the combinations of Claims 10-15 and 17, at least because none of these documents actually discloses the claimed combination, and performance of the claimed method is not inherent in the operation of the devices of the prior art.

*Phillips* provides a clear methodology for the analysis of a patent's (and a patent application's) claim's terms; Applicant submits concurrently herewith a copy of the *Phillips* decision, for the patent examiner's convenience. M.P.E.P. § 2111 *et seq.* also contains guidance to the examining corps for claim interpretation which is largely consistent with the rules reaffirmed in *Phillips*. The starting point for interpretation of a claim term is to inquire how a person of ordinary skill in the art, at the time of filing of the application, would interpret the term. "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application." *Phillips*, 415 F.3d at 1313. "Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* Thus, an evaluation of the intrinsic evidence, *i.e.*, the

application file history, is the first task for claim interpretation.

As correctly noted in the Advisory Action, this application does not specially define the term “impulse”, *i.e.*, Applicant has not acted as their own lexicographer and relies instead on its ordinary meaning. And this is where the Advisory Action goes astray. The Advisory Action then states that:

In light of the non-limiting nature of the intrinsic record on this issue, the examiner holds that the secondary flow of fluid through the vortex generators of Schulte-Werning, Althaus ‘982, and Althaus ‘311 can be termed an impulse whether the duration be 3 microseconds, 3 hours, or 3 days within the immense scope of the pending claims . . . .

(Advisory Action Continuation Sheet). Essentially, the Advisory Action states the position that the term “impulse” is not limited to any length of time, and thus completely ignores how that term would be understood by a person of ordinary skill in the art based on its plain and ordinary meaning.

M.P.E.P. § 2111.1 provides a significant amount of guidance at this point, making clear that the ‘plain meaning’ of a claim term is that given to it by a person of ordinary skill in the art, when the intrinsic evidence reveals no other special meaning. The inquiry into what is the plain meaning of a claim term was addressed by the *Phillips* court:

Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.” . . .

Those sources include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.

*Id.* (internal citations omitted) That is, it is then proper to review the entire application as well as extrinsic evidence, *e.g.*, dictionaries and the like, to assist in the determination of what is the plain meaning of the claim term to the person of ordinary skill in the art. Notably and contrary to

that stated in the Advisory Action, ascribing any definition that is convenient, or completely ignoring the limiting effects of the claim term, is not part of the analysis.

According to The American Heritage Dictionary, New College Edition (Houghton Mifflin Co., Boston, MA, 1976), an impulse is, “An impelling force or the motion it produces; a thrust; a push. Physics: The product of the average value of a force with the time during which it acts, equal in general to the change in momentum produced by the force in this time interval”. Merriam-Webster’s Online Dictionary (M-W.com) states that an impulse is “a force so communicated as to produce motion suddenly c : INCENTIVE 2 a : the act of driving onward with sudden force : IMPULSION b : motion produced by such an impulsion : IMPETUS c : a wave of excitation transmitted through tissues and especially nerve fibers and muscles that results in physiological activity or inhibition 3 a : a sudden spontaneous inclination or incitement to some usually unpremeditated action b : a propensity or natural tendency usually other than rational”. Consistent with the usage in this application, the common usage of the term “impulse”, in ordinary language, is time-limited to relatively short time periods, and is not unlimited as posited in the Advisory Action.

Furthermore, the specification of this application provides sufficient guidance when using the term “impulse” so that the meaningless definition given to the term in the Advisory Action is plainly inapposite to its use in the application. As plainly described in the application, *e.g.*, at pages 2, 3, and 7, the use of an axial impulse of fluid is to stabilize the vortex flow when flow conditions threaten to produce return flow and exceedingly low flow velocities. Were the Advisory Action’s definition of “impulse” the correct one, the additional flow would occur without regard to flow conditions and would thus jeopardize flame stability and combustion, plainly in contradiction to the description of the use of an “impulse” in this application. Thus, the Advisory Action’s overly broad interpretation can not be the interpretation taken by the person of ordinary skill in the art, because it would be contrary to the rest of Applicant’s disclosure.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of each of Claims 10-15 and 17 are not anticipated by *Schulte-Werning*, *Althaus* ‘982, or *Althaus*

'311, are therefore not unpatentable under 35 U.S.C. § 102(b), and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102(b).

### **Rejection under 35 U.S.C. § 103(a)**

In the Office Action, beginning at page 45, Claim 9 was rejected under 35 U.S.C. § 103(a), as reciting subject matter that allegedly is obvious, and therefore allegedly unpatentable, over each of the disclosures of *Schulte-Werning*, *Althaus '982*, and *Althaus '311*, each taken alone.

Because Claim 9 has been cancelled without prejudice, this rejection is moot.

### **New Claim**

Claim 18 has been added. Claim 18 requires that, in the method of Claim 10, introducing an axial impulse comprises introducing only when flow conditions cause breakdown of the vortices and return flow. Support for the subject matter of Claim 18 can be found throughout the application, including pages 2, 3, and 7. In addition to be allowable for the same reasons as Claim 10, Claim 18 is further allowable over the prior art because none of the prior art methods time-limit the injection of fluid into the vortex field to those times when particular flow conditions exist; instead, the prior art continuously injects fluid. Accordingly, the prior art fails to disclose each and every limitation recited in Claim 18; an early indication of the allowability of Claim 18 is earnestly solicited.

### **Conclusion**

Applicant respectfully submits that the present patent application is in condition for allowance. An early indication of the allowability of this patent application is therefore respectfully solicited.

If Mr. Cooley believes that a telephone conference with the undersigned would expedite passage of this patent application to issue, he is invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. If, however, additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

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Date: 14 December 2006